

### **REMARKS**

The foregoing amendment amends Claim 1 to clarify the invention and adds new Claims 18 and 19. Claims 1, 3, 4, 7, 8, 10, 11, 13, 14, 17, 18, and 19 are pending in this application. For the reasons set forth below, Applicant believes that the rejections should be withdrawn and that the claims are in condition for allowance.

### **REJECTION OF CLAIMS 1, 3 AND 7 UNDER 35 U.S.C. 102(b)**

The Examiner rejected Claims 1, 3 and 7 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 2,290,818 to Tyskewicz ("Tyskewicz"). As discussed below, this rejection is respectfully traversed.

#### **Claim 1**

The foregoing amendment to Claim 1 clarifies that a muffler includes an opening formed in a side face of the second straight pipe portion of the downstream pipe in the expansion room, the opening being formed **only** between the end portion of the upstream pipe and the end portion of the first straight pipe portion of the downstream pipe. Support for the amendment to Claim 1 can be found in Figures 2 and 6 and the accompanying text. Figure 2 illustrates that the opening (10) in the downstream pipe (8) is formed in the elongated area extending substantially along the main axis of the downstream pipe (8) only between the end portion (11a) of the upstream pipe and the end portion (8a) of the first straight pipe portion of the downstream pipe (8).

According to one embodiment of the present invention, a main flow (a) of exhaust gas enters the downstream pipe (8) via the end portion of the first straight pipe portion of the downstream pipe. A secondary flow (b) of exhaust enters the downstream pipe (8) via the small holes (10a) or via the slit (10b), so that in the downstream pipe (8), the main flow (a) and the secondary flow (b) interfere in the expansion room (3) with each other to effectively reduce flow noise and discharge noise, while also preventing a pressure loss in the exhaust gas. Fig. 1 and pg. 6, ll. 4-22. The interference of the two flows of the exhaust effectively cancels flow energy and reduces noise.

Figure 5 of Tyskewicz describes that one pipe 51 enters the chamber 52 at one end while a second pipe 53 enters the chamber 52 at the other end and is recurved upon itself as at 54, terminating with an open end 55. As detailed by Tyskewicz the escape openings 57, 58 are comprised of slots 57 formed in the straight parts of the tube and holes 58 formed in the curved part. Pg. 2, col. 1, ll. 64- col. 2, ll. 2. Tyskewicz describes that the lateral escape openings are distributed throughout the pipe to give the gas pulses a greater chance to bleed off through the openings and this (the lateral escape openings positioned throughout the pipe) improves the silencing effect and reduces the tendency to produce shell noise. See pg. 1, col. 1, ll. 27-36.

Tyskewicz describes that the escape openings distributed throughout the pipe are essential and teaches away from the muffler of Claim 1 wherein “the opening” is formed in a side face of the second straight pipe portion of the downstream pipe. Claim 1 does not require multiple openings distributed throughout the downstream pipe. The reliance upon multiple escape openings distributed throughout the pipe indicates that Tyskewicz describes a different solution from that recited by Claim 1.

The Examiner alleged that the upper slot 57 in Figure 5 of Tyskewicz disclosed the opening defined by Claim 1. Claim 1 requires that the opening *be formed only between the end portion of the upstream pipe and the end portion of the first straight pipe portion of the downstream pipe.* In contrast, Figure 5 of Tyskewicz illustrates that the upper slot 57 extends beyond the open end 55 of the pipe 53. Tyskewicz does not disclose that the upper opening 57 is formed only between the end portion of the upstream pipe 51 and the end portion 55 of the downstream pipe 53, as required by Claim 1. Tyskewicz does not describe the particular location of the opening in the downstream pipe recited by amended Claim 1.

Claim 1 as amended is patentable over Tyskewicz.

Claims 3 and 7

Claims 3 and 7 depend from Claim 1 and are patentable over Tyskewicz for at least the same reasons discussed above.

**REJECTION OF CLAIMS 4, 8, 10, 11, 13, 14 AND 17 UNDER 35 U.S.C. 103(a)**

The Examiner rejected Claims 4, 8, 10, 11, 13 and 14 under 35 U.S.C. 103(a) as being unpatentable over Tyskewicz. The Examiner rejected Claim 17 under 35 U.S.C. 103(a) as being unpatentable over Tyskewicz in view of U.S. Patent No. 4,735,283 to Macaluso ("Macaluso").

**Claims 4, 8, 10, 11, 13 and 14**

Claims 4, 8, 10, 11, 13 and 14 depend from Claim 1 and are patentable over Tyskewicz for at least the same reasons discussed above.

**Claim 17**

As discussed above in detail, Tyskewicz does not describe the particular location of the opening in the downstream pipe recited by amended Claim 1. Claim 17 depends from Claim 1 and is patentable over Tyskewicz in view of Macaluso for at least the same reasons discussed above. In addition, there is no reason to combine Tyskewicz and Macaluso as alleged by the Examiner. Figure 1 of Macaluso illustrates three separate gas flow pipes and three expansion chambers, whereas Figure 5 of Tyskewicz describes two gas flow pipes and a single expansion chamber. The Office Action does not describe how the gas flow pipes illustrated by Tyskewicz would be combined within the expansion chambers of Macaluso or how such a combination would provide further sound reduction.

**NEW CLAIMS 18 and 19**

New Claims 18 and 19 further defines the downstream pipe. Claim 18 requires that the opening formed in the side face of the second straight pipe portion opens in the second expansion chamber and Claim 19 requires that the only opening in an outer surface of the downstream pipe is the opening formed in the side face of the second straight pipe portion. Support for the new claims can be found in Figures 2 and 6 and the accompanying text. No new matter has been added.

Claims 18 and 19 ultimately depend from Claim 1 and are patentable over the cited references for at least the same reasons discussed above in connection with Claims 1 and 17. Furthermore, as discussed above, Tyskewicz discloses lateral escape openings distributed

throughout the pipe including openings in the curved portion and slots in the straight portions of the pipe.

**CONCLUSION**

In light of the foregoing, it is respectfully submitted that the pending claims are allowable and a notice of allowance is respectfully requested. If there are any issues that can be resolved via a telephone conference, the Examiner is invited to contact the undersigned at 404.685.6799. The Commissioner is authorized to charge any additional fees that may be due or credit any overpayment to Deposit Account No. 11-0855.

Respectfully submitted,

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